PROTOCOL

Addressing the Combined Surficial Risks from Adjacent Units

Introduction

This protocol, developed in support of the Savannah River Site environmental remediation program, provides guidance for the determination of the combined surficial risk to human receptors from collocated units. Both residential and industrial scenarios are addressed.

In order to determine an appropriate scale for which to consider adjacent units, a review of current regulatory guidance documents determined that a residential lot size is typically assumed to be about 0.3 to 0.5 acres. For the purposes of this protocol, the same value is used for a typical industrial site. This is judged to be appropriate since the industrial exposure time is 8 hours or 100% of the work day. When evaluating the effects from a larger unit, the exposure time would have to be reduced to account for the fact that the worker can not simultaneously occupy two different locations.

A half-acre is about 21,780 square feet, which is about 150 feet on a side for a square shape. For smaller units located close to one another, the units should be combined into a single larger unit and evaluated this way. These units may still be evaluated separately in order to support remedial decisions. The strategy for evaluating combined effects of separate units in an OU should be defined in the conceptual site model developed for RFI/RI workplan.

It is very important that the decision about combining units be made early in the remedial investigation process (during scoping) and that it take into account all of the information known about the unit. In some cases, characterization information about units which are nearby but are in separate operable units may not be available; therefore, an alternate path forward may need to be evaluated.

The combined effect from releases from nearby operating facilities is not part of the scope of this protocol. This protocol applies only to human health evaluations.

Determine the Need for Combined Risk Evaluation

The initial screen to determine whether or not the combined risk needs to be evaluated, is as follows:

1. Locate the outlines of each individual unit (approximately).

2. Draw a line outward from the perimeter of each unit equal to 50 feet in order to construct a footprint around the unit.

3. Determine if the resulting footprint overlaps any collocated units. Note that overlapping footprints do not have any significance, only footprints which overlap another unit are significant.

4. For units for which a neighboring footprint overlaps, perform a combined risk evaluation. Units for which a neighboring footprint does not overlap will not be included in a combined risk evaluation.

See Figure 1 for an illustration of the application of this guide rule. As shown in this figure, Units B and C would be the subject of a combined risk evaluation, but Unit A would not.

Other factors must then be considered relative to the specific unit(s) being evaluated and a CSM developed to determine the appropriateness of combining the evaluation of adjacent units. The strategy for evaluating the OU should be discussed during scoping, defined in the RFI/RI workplan and factored into the remedial investigation.

Data Evaluation

For risk evaluation purposes, the exposure concentration of each constituent used is the reasonable maximum exposure (RME). The RME is defined as the highest concentration that could reasonably be expected to occur. The RME value for each constituent will be determined using all of the data from the individual units which are to be evaluated as a combined unit. The RME is the smaller of either the UCL 95 (upper confidence level 95%) value for the unit data or the maximum value actually detected for a constituent.

Similarly, unit-background data should be combined as appropriate and used in the evaluation.

Risk Evaluation Scenarios

Using the combined unit RME data and background data, evaluate the following standard scenarios:

- Hypothetical on-unit resident
- Hypothetical on-unit industrial worker

Results

Include the results of this combined unit evaluation in the summary discussions of the unit.

Figure 1. Determining If Combined Risk Should Be Evaluated